

WHAT IS CLAIMED:

1. An apparatus for drying a tissue web comprising:
a through-air dryer comprising a porous drying cylinder configured to permit gas flow therethrough and a hood surrounding a portion of the drying cylinder leaving an open free end;
a throughdrying fabric wrapped around the drying cylinder from an upstream point to a downstream point, the throughdrying fabric being guided around the drying cylinder by an upstream guide device and a downstream guide device; and
an external baffle positioned over the open free end of the drying cylinder, the external baffle comprising at least two plates, the plates being connected together in a manner that permits thermal extension of the baffle, the external baffle shielding the open free end of the drying cylinder from external air.
2. An apparatus as defined in Claim 1, wherein the external baffle extends from the downstream point to the upstream point of the throughdrying fabric without contacting the fabric.
3. An apparatus as defined in Claim 1, further comprising an internal baffle positioned within the drying cylinder, the internal baffle being positioned adjacent to the open end of the drying cylinder.
4. An apparatus as defined in Claim 1, wherein the external baffle includes a first end and a second end, the first end and the second end having an adjustable length for positioning the external baffle adjacent to the throughdrying fabric.
5. An apparatus as defined in Claim 1, wherein the external baffle includes a first end and a second end and the hood also includes a first end and a second end, the ends of the baffle overlapping with the ends of the hood around the drying cylinder.
6. An apparatus as defined in Claim 1, wherein the plates of the baffle are connected in a manner that allows the plates to slide over one another when undergoing thermal expansion.
7. An apparatus as defined in Claim 6, wherein the plates are connected by a connection device, at least one of the plates defining a slot that surrounds the connection device to permit relative movement of the plates.

8. An apparatus as defined in Claim 1, wherein the through-air dryer is configured such that a heated gas flows from the hood to the drying cylinder.

9. An apparatus as defined in Claim 1, wherein the through-air dryer is configured such that a heated gas flows from the drying cylinder to the hood.

10. An apparatus as defined in Claim 1, wherein the external baffle comprises at least three plates.

11. An apparatus as defined in Claim 1, further comprising a baffle support for positioning the external baffle adjacent to the drying cylinder, the baffle support being in communication with a cooling system configured to cool the baffle support.

12. An apparatus as defined in Claim 11, wherein the cooling system includes a cooling fluid source in communication with at least one cooling fluid channel formed in the baffle support.

13. An apparatus as defined in Claim 11, wherein the external baffle includes a first end and a second end, the baffle support maintaining the first end and the second end in a fixed position.

14. An apparatus as defined in Claim 12, wherein the cooling system is configured to flow air through the cooling fluid channel.

15. An apparatus as defined in Claim 12, wherein the cooling system is configured to flow water through the cooling fluid channel.

16. An apparatus as defined in Claim 4, wherein the first end and the second end of the external baffle comprise at least one segment that extends and retracts in relation to the plates.

17. An apparatus as defined in Claim 4, wherein the first end and the second end of the external baffle are coated with a friction reducing material.

18. An apparatus as defined in Claim 1, wherein the apparatus is configured such that the throughdrying fabric conveys a tissue web through the through-air dryer without the tissue web contacting any papermaking rolls.

19. An apparatus for drying a tissue web comprising:
a through-air dryer comprising a porous drying cylinder configured to permit gas flow therethrough and a hood surrounding a portion of the drying cylinder leaving an open free end;

a throughdrying fabric wrapped around the drying cylinder from an upstream point to a downstream point, the throughdrying fabric being guided around the drying cylinder by an upstream guide device and a downstream guide device; and

an external baffle positioned over the open free end of the drying cylinder, the external baffle shielding in the open free end of the drying cylinder from external air; and

a baffle support for positioning the external baffle adjacent to the drying cylinder, the baffle support being in communication with a cooling system configured to cool the baffle support.

20. An apparatus as defined in Claim 19, wherein the external baffle comprises at least two plates.

21. An apparatus as defined in Claim 19, wherein the external baffle extends from the downstream point to the upstream point of the throughdrying fabric without contacting the fabric.

22. An apparatus as defined in Claim 19, further comprising an internal baffle positioned within the drying cylinder, the internal baffle being positioned adjacent to the open end of the drying cylinder.

23. An apparatus as defined in Claim 19, wherein the external baffle includes a first end and a second end, the first end and the second end having an adjustable length for positioning the external baffle adjacent to the throughdrying fabric.

24. An apparatus as defined in Claim 19, wherein the external baffle includes a first end and a second end and the hood also includes a first end and a second end, the ends of the baffle overlapping with the ends of the hood around the drying cylinder.

25. An apparatus as defined in Claim 20, wherein the plates of the baffle are connected in a manner that allows the plates to slide over one another when undergoing thermal expansion.

26. An apparatus as defined in Claim 19, wherein the cooling system includes a cooling fluid source in communication with at least one cooling fluid channel formed in the baffle support.

27. An apparatus as defined in Claim 19, wherein the external baffle includes a first end and a second end, the baffle support maintaining the first end and the second end in a fixed position.

28. An apparatus as defined in Claim 26, wherein the cooling system is configured to flow air through the cooling fluid channel.

29. An apparatus as defined in Claim 26, wherein the cooling system is configured to flow water through the cooling fluid channel.

30. An apparatus as defined in Claim 19, wherein the apparatus is configured such that the throughdrying fabric conveys a tissue web through the through-air dryer without the tissue web contacting any papermaking rolls.

31. An apparatus as defined in Claim 19, wherein the baffle support comprises a plurality of hollow support elements spaced along the external baffle, the support elements being in fluid communication with each other for receiving a cooling fluid therethrough.

32. An apparatus for drying a tissue web comprising:
a through-air dryer comprising a porous drying cylinder configured to permit gas flow therethrough and a hood surrounding a portion of the drying cylinder leaving an open free end;

a throughdrying fabric wrapped around the drying cylinder from an upstream point to a downstream point, the throughdrying fabric being guided around the drying cylinder by an upstream guide device and a downstream guide device; and

an external baffle positioned over the open free end of the drying cylinder, the external baffle shielding the open free end of the drying cylinder from external air, the external baffle including a first end and a second end, the first end and the second end having an adjustable length for positioning the external baffle adjacent to the throughdrying fabric.

33. An apparatus as defined in Claim 32, wherein the external baffle comprises at least two plates, the plates being connected together in a manner that permits thermal expansion of the baffle.

34. An apparatus as defined in Claim 32 wherein the external baffle extends from the downstream point to the upstream point of the throughdrying fabric without contacting the fabric.

35. An apparatus as defined in Claim 32, further comprising an internal baffle positioned within the drying cylinder, the internal baffle being positioned adjacent to the open end of the drying cylinder.

36. An apparatus as defined in Claim 32, wherein the hood includes a first end and a second end, the ends of the baffle overlapping with the ends of the hood around the drying cylinder.

37. An apparatus as defined in Claim 33, wherein the plates of the baffle are connected in a manner that allows the plates to slide over one another when undergoing thermal expansion.

38. An apparatus as defined in Claim 32, further comprising a baffle support for positioning the external baffle adjacent to the drying cylinder, the baffle support being in communication with a cooling system configured to cool the baffle support.

39. An apparatus as defined in Claim 38, wherein the cooling system includes a cooling fluid source in communication with at least one cooling fluid channel formed in the baffle support.

40. An apparatus as defined in Claim 38, wherein the external baffle includes a first end and a second end, the baffle support maintaining the first end and the second end in a fixed position.

41. An apparatus as defined in Claim 32, wherein the first end and the second end of the external baffle comprise at least one segment that extends and retracts.

42. An apparatus as defined in Claim 32, wherein the first end and the second end of the external baffle are coated with a friction reducing material.

43. An apparatus as defined in Claim 32, wherein the apparatus is configured such that the throughdrying fabric conveys a tissue web through the through-air dryer without the tissue web contacting any papermaking rolls.